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**Sent:** 7/23/2020 2:49:39 AM  
**To:** Brasaemle, Karla [Karla.Brasaemle@TechLawInc.com]  
**Subject:** Initial questions on the draft Parcel F submarine pen report

Karla – I've reviewed through Section 5. (Most of your comments are on Section 6.) Here are my initial questions:

1. Section 2.5 says "ROCs from nuclear and atomic weapons tests would include a mixture of fission products, activation products, and actinides. 137Cs and 239Pu were selected as ROCs most likely to be present and most likely to be detected as contamination at HPNS." Do you know or can you point me to a rationale for the selection of Cs-137 and Pu-239 as ROCs associated with weapons testing?
2. Also in Section 2.5 it says "Radioactivity from contaminated ships is most likely to occur where contaminated ship surfaces could come into contact with drydocks or piers." Do you agree? Are they saying that physical contact between the ship hull and drydock/pier is the most likely cause of contamination?
3. Section 2.4 does not mention previous investigations of drydock 6 described in the HRA (mentioned in Tables 6-6 and 6-7 and Sections 8.3.2.11 to 8.3.2.12 in the HRA). Nor do I see mention of these previous investigations in the Work Plan. An oversight?
4. Section 3.3.5 of the report says: "The IL for alpha/beta static measurements is 50 percent of the most conservative (i.e., lowest) release criteria provided in Table 1 for alpha- and beta-emitting radionuclides." Why is 50% used? Aren't static measurements usually compared directly to RGs (i.e., 100% of the release criteria)? And is this statement consistent with Section 4.3.6 which says "At the completion of each two-minute count, the alpha and beta results were recorded and compared to the release criteria presented in Table 1."
5. Section 3.4.4 says "The alpha background on concrete ranged from 3.5 cpm to 10.5 cpm." In Table 4, I see a range from 23.1 to 34.5 cpm. Shouldn't these match? Same with the alpha efficiency values and beta background values. Section 3.4.4 and Table 4 appear to differ.
6. Section 3.4.7 of the Report says "Concrete samples were collected ... to support the characterization of locations with identified elevated alpha activity... Samples were analyzed for 137Cs and 226Ra by gamma spectroscopy analysis" Why measure Cs137 since not an alpha emitter?
7. Section 4.3.1 says "A concrete pad in Parcel C was used as the RBA for alpha/beta measurements. This RBA was selected because the concrete was most similar in nature to the concrete on the submarine pens, and it was non-impacted because it was constructed after the radiological operations occurred, as described in Section 2.2." I don't see any discussion of the RBA in Section 2.2. Do you?
8. Section 4.3.1 says: "A small concrete pad adjacent to SU 3 was used as the RBA for gamma measurements." I see a footnote in Table 5 that says "concrete in Parcel C" was used as RBA for static gamma. Shouldn't these statements match?
9. Section 5.3.2 of the Work Plan says "Concrete Background Area: The reference area behind Building 810 (Figure 1) will be used to collect gamma instrument-specific background levels." Is this inconsistent with the report?
10. Section 5.4.5 of the Work Plan says "The IL for gamma scan measurements is the average of gamma scan measurements for a similar material in an appropriate background area plus three standard deviations." Section 3.3.5 of the report says "The IL for gamma scan measurements is the average of gamma scan measurements for

a SU plus three standard deviations (FCR-003; Appendix B).” The latter (referring to the SU, not the background area) is less conservative?

11. The last paragraph in Section 4.3.5 says that they collected about 20 alpha/beta statics in each of the three SUs. That is consistent with Figures 37 and 38. The paragraph (and Table 7) indicate that 2,148 locations exceeded the alpha scan IL. So they only did alpha/beta statics at a fraction of locations exceeding the alpha/beta scan IL? The following statement is offered to explain why: “This investigation approach was selected because the scan MDC for alpha radiation exceeded the release criterion resulting in a large number of scan results that exceeded the IL in each SU.” Are they saying that most exceedances of the scan IL were not actual exceedances (i.e., the MDC exceeded the IL)?
12. Also in Section 4.3.5, is the statement that 20 statics were collected inconsistent with Section 6.2.2.3 and Figure 39 which indicate 48 alpha/beta statics for SU3?